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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,323	03/03/2004	Lawrence C. Lei	AMAT/5191C1/ISM/CORE/MCVD	4370

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EXAMINER
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PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/792,323

Applicant(s)

LEI, LAWRENCE C.

Examiner

Sang Y. Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 12-17, 19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-17, 19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 6-9, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Suntola et al (US 4,389,973).

Suntola shows a vaporizer having a housing with an interior volume and an inlet for a carrier gas, the interior volume to receive solid chemical precursor, at least two spaced surfaces (53, 54) with heating elements to allow flow of the carrier gas therebetween, and an outlet connected to a reaction chamber (10) for chemical vapor deposition including atomic layer deposition. Also see Figure 8.

With respect to the recitation of solid precursors being tantalum or tungsten, it is noted that these recitations relate to the materials or articles worked upon by the apparatus, and they do not limit the apparatus claims. MPEP 2115.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 3-5, 10, 12, 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suntola et al (US 4,389,973) in view of Onoe et al (US 6,270,839).

Suntola shows the apparatus claimed except the at least two surfaces are selected from the claimed materials.

Onoe shows the apparatus for vaporizing a solid precursor claimed including a housing with at least two surfaces in a linear shape with baffles (60), and it further shows that surfaces can be made of a mesh or stainless steel. It also shows it is known to use a mesh type made of steel wires.

In view of Onoe, it would have been obvious to one of ordinary skill in the art to adapt Suntola with the surfaces made of the claimed materials to allow a more effective vaporization of the solid precursors while adequately containing such precursors within the surfaces.

5. Claims 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suntola et al (US 4,389,973) in view of Horsky (US 6,452,338).

Suntola shows the apparatus claimed except having a heating member in the wall of the housing.

Horsky shows a vaporizer having heating element provided in the wall of the housing which contains the solid precursor. In view of Horsky, it would have been obvious to one of ordinary skill in the art to adapt Suntola with the heating element in the wall of the housing as an alternative heating element arrangement to also efficiently heat the vaporizing precursor.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suntola in view of Horsky as applied to claims 16 and 19 above, and further in view of Onoe et al (US 6,270,839).

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Suntola in view of Horsky except the at least two surfaces are selected from the claimed materials.

Onoe shows the apparatus for vaporizing a solid precursor claimed including a housing with at least two surfaces in a linear shape with baffles (60), and it further shows that surfaces can be made of a mesh or stainless steel. It also shows it is known to use a mesh type made of steel wires.

In view of Onoe, it would have been obvious to one of ordinary skill in the art to adapt Suntola, as modified by Horsky, with the surfaces made of the claimed materials to allow a more effective vaporization of the solid precursors while adequately containing such precursors within the surfaces.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y. Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. R.

Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp